April 4, 1978

WORLDWIDE ENVIRONMENTAL PROTECTION GUIDELINES

In early 1977, a set of Worldwide Environmental Protection Guidelines was developed to insure the Corporate-wide pursuit of an integrated approach to the management of Monsanto's impact on the environment. These guidelines and their attendant programs have been further developed and are presented in the attachments. The process of guideline development will not be complete until the required elements for non-site-related (e.g. product-related) environmental impact management are also defined.

J. Richard Sayers

JRS:ms

Attachment

DSW 117655

COMPANY CONFIDENTIAL

STLCOPCB4032189

WORLDWIDE ENVIRONMENTAL PROTECTION GUIDELINES

Monsanto must manage its environmental impact on the workplace, the immediate plant area, and the world at large. Worldwide Environmental Protection Guidelines provide an integrated approach to this task; protection of the environment and people -- employees, customers, and the general public -- and to full compliance with the law of the land, wherever Monsanto operates.

Where applicable laws and regulations result in unreasonable restraint (beyond that needed to protect health and the environment) Monsanto will work to change them through appropriate legal or legislative procedures. Similarly, Monsanto will not hesitate to go beyond existing regulations where necessary, to protect health and the environment.

Recognizing that environmental protection is an evolving science, Monsanto is committed to improving its performance as its capabilities improve and national standards become more stringent.

The first five Guidelines that follow are site-related and have been established to protect the workplace and plant environments, where Monsanto has operating control. The sixth guideline relates to Monsanto involvement with service companies which support Monsanto's business from their plant site. Guidelines covering product safety, worldwide, will be provided at a later date.

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GUIDELINES

1. PROCESS DISCHARGE STANDARDS - Operating companies will establish Monsanto discharge standards for each process. (These standards will aid in the management of the impact of plant operations on the environment, the handling of agency inquiries, and the development of plans for required pollution control investment.)

REVIEW-APPROVAL-EXCEPTIONS

- Environmental Policy Staff, working with the operating companies, will review and approve all Monsanto discharge standards prior to their adoption, and the Environmental Policy Committee will be notified of those that do not meet U.S. Standards as a minimum.
- It is the intent to use Monsanto standards or local legal standards whichever is more demanding for process design and plant operation.
- If the situation at a specific location appears to justify an exception to Monsanto standards, the Environmental Policy Committee will be notified by the Environmental Policy Staff of proposed actions that do not meet Monsanto standards. The Environmental Policy Committee may approve such exceptions after examining local conditions and any other relevant factors.
- Corporate Administrative Committee will be notified of such approvals of exceptions.

2. SOLID WASTE CONTROL - Establish Monsanto monitored and/or controlled disposition of all wastes.

3. PLANT ENVIRONMENTAL ASSESSMENTS - Establish and maintain an environmental assessment of all plant sites.

- The assessment will include information on local air and water quality, soil and vegetation sampling, relationships with regulatory agencies, and the effects of our presence on the surrounding environment.

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- GUIDELINES -

4. DEEP-WELL INJECTION - Reduce Monsanto's dependency on deep-well injection of wastes.

5. INDUSTRIAL HYGIENE - Determine and monitor workplace stresses, and maintain Monsanto workplace environment standards.

REVIEW-APPROVAL-EXCEPTIONS

- The Industrial Hygiene section of DMEH, working with the operating companies, will establish, review, and approve all Monsanto workplace environment standards prior to their adoption, and in this process will notify the Environmental Policy Committee of those that do not meet U.S. Standards as a minimum.
- It is our intent to use Monsanto standards, or local legal standards, whichever is more demanding, for design and operation of our plants.
- If the situation at a specific location appears to justify an exception to Monsanto standards, the Environmental Policy Committee will be notified by the Environmental Policy Staff of the exception. The EPC may approve such exceptions after examining the relevant supporting information.
- The Corporate Administrative Committee will be notified of such approvals of exceptions.

6. OUTSIDE PROCESSORS - Select companies for support of Monsanto operations - through product conversions, custom manufacture, formulating, packaging, by-product sales, and other services involving Monsanto products/technology - which will operate with concern for worker safety and the protection of the environment. Formalize all agreements by contract and ensure that the companies selected have all available relevant information on the Monsanto products and technology (including toxicological and environmental factors) with which they are involved. Terminate contracts with Outside Processors if they are found to be performing unsatisfactorily.

GUIDELINE PROGRAMS

1. PROCESS DISCHARGE STANDARDS

Program (as modified at 10/77 CAC meeting).

Place highest priority on those processes with the greatest importance to Monsanto. Complete the establishment of Monsanto process discharge standards by 1982.

Status - 2/23/78

A stepwise guide for the development of Monsanto process discharge standards has been prepared and is now under test at several company locations to determine its practicability. A method for the setting of specific standards, which anticipates the ultimate standard which will be set by EPA, has been outlined.

Compliance with this guideline will provide data to each operating company, organized on a process-by-process basis, showing the present level of pollutant discharges as compared with the levels which are anticipated to be permitted under the new phase of EPA regulations. (Generally, Monsanto discharge standards will be set at the level to be established by EPA.)

Notes

A process will normally be considered to include equipment and facilities used for unloading and storing raw materials, processing, pollution control, including a share of the end-of-pipe treatment plant, packaging, and shipping, including bulk storage of finished goods. For convenient handling, remote tank farms can be considered as a separate process. Process discharge standards will be set at the point at which the discharge meets the environment. When this point is not obvious (noise, fugitive emissions, etc.), it will be stated. Discharges will include, as appropriate, air emissions, liquid effluents, solid wastes, and noise.

2. SOLID WASTE CONTROL

Program

Bring under Monsanto control as soon as possible.

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- GUIDELINE PROGRAMS -

Status - 2/23/78

All solid wastes are being monitored and controlled in compliance with current regulations.

Notes

Regulations under the Resource Conservation and Recovery Act will begin issuing shortly and will restrict Monsanto's options for ultimate disposal and destruction of U.S.-generated wastes. Present methods of disposition will be impacted. Based on an analysis of the Act, a general guide to the establishment of Waste Disposal Standards has been prepared, and the probable requirements for monitoring the disposal operations have been developed. Ex-U.S. regulatory prospects have not been evaluated.

3. PLANT ENVIRONMENTAL ASSESSMENTS

Program

Complete initial surveys by January 1, 1980.

Status - 2/23/78

Initial surveys have been completed for 50+% of U.S. plants and completed assessments have been prepared for approximately 1/3 of the plants. Three ex-U.S. plants are complete. There is some question of when complete is complete, as no precise definition of an assessment has been developed. The status indicated above is a reasonable estimate.

Notes

The assessment program is proceeding satisfactorily with most documents following a pattern developed by MIC.

4. DEEP-WELL INJECTION

Program

(a) Establish immediate ceiling of 5,000 gpm maximum injection rate for the corporation (not including clean sodium/calcium chloride brines).

(b) Establish program to reduce corporate injection rate to the following levels:

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- GUIDELINE PROGRAMS -

1/1/81 - 4,000 gpm maximum

1/1/83 - 2,000 gpm maximum

1/1/85 - 1,000 gpm maximum

Status - 2/23/78

Representatives of MCI, MTC, MIC, MAPC, MP&R, and CED have completed an initial evaluation of the deep-well injection reduction program to define the requirements for capital, personnel, and time required to achieve the targets. Based on this study, some program modification may be advisable, including a broadening of the exclusion to include other inorganic salts of low or moderate toxicity and changes in the program's pattern of dates/reductions.

5. INDUSTRIAL HYGIENE

Program

(a) Complete Base Data Surveys by:

U.S. - January, 1978
ex-U.S. - January, 1979

(b) Complete workplace environmental baseline monitoring by:

U.S. - January, 1979
ex-U.S. - January, 1981

(c) Establish and maintain written sustaining Programs, which include monitoring and corrective action plans for workplace exposures.

U.S. - July, 1980
ex-U.S. - July, 1982

(d) Establish and attain compliance with Monsanto workplace environment standards as required by law or prescribed by DMEH.

Status - 2/23/78

Base Data survey is 100% complete in U.S., 60% ex-U.S. Baseline monitoring is 80% complete in U.S., 40% ex-U.S. (includes most of Europe).

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- GUIDELINE PROGRAMS

Notes

The Industrial Hygiene section of DMEH carried out or coordinated the Base Data surveys, defined the required monitoring, and is pressing this program on a worldwide basis. Achievement of program targets appears probable.

Monsanto workplace environment standards will be those established by OSHA, other appropriate government bodies, the ACGIH, or Monsanto if no standard is available or a more stringent standard is found necessary by the Director of DMEH.

6. OUTSIDE PROCESSORS

Program

(a) Complete initial processor review and eliminate/upgrade companies found to be inadequate by Jan. 1, 1979.

(b) Establish a continuing pre-contract assessment and review program Jan. 1, 1979.

Status

(a) MCI, MAPC, MP&R have completed initial processor reviews and have initiated required corrective actions. MTC, MIC will be complete by 4/1/78. MCP review is underway.

(b) MAPC has instituted a formulator review program. MIC and MCI have developed an outside processor contract scheme. A corporate pre-contract assessment scheme has been developed.

Notes

The extent to which Monsanto will involve itself in the operations of an outside processor must relate to:

(a) Toxicity and volume of the product(s) involved;
(b) The nature of the processing;
(c) The technical competence of the processor;
(d) The record of regulatory compliance of the processor.

If the processor is in direct line, between Monsanto and its customers, an extensive outside processor management program similar to that developed by MAPC for its formulators is required. However, a lesser degree of contact and review of processor operations will normally be appropriate. Monsanto should not supervise the processor's operations, nor impose its standards of safety. Care in initial selection of the

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processor and in the transmission of all required technical information for the safe handling of Monsanto products, intermediates, and technology is essential. Relations with each outside processor must be formalized by a contract insuring that he remains independent and fully responsible for his own operation. Periodic assessment of performance is required to determine that he is complying with the level of safety appropriate to his particular industry.

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by the Monsanto Representative and is to be required to bring its operations into compliance promptly.

6.0 PERSONAL PROTECTIVE EQUIPMENT

6.1 The Contractor is to be notified prior to beginning work of the minimum requirements for personal protective equipment such as special work clothing, goggles, gloves, or full body protection.

6.2 The Contractor is to furnish and require the use and wearing of proper personal protective equipment by its employees.

6.3 If a Contractor does not have the specified equipment, the task is to be delayed until such equipment is provided by Contractor.

6.4 Personal protective equipment, including special clothing, are not to be supplied by Monsanto unless dictated by an emergency. (See Section 14.0 for indemnification requirements.)

7.0 RESPIRATORY PROTECTIVE DEVICES

7.1 Use of respiratory protective devices requires a program for proper selection, fitting, training, cleaning and disinfection, storage, inspection and repair, surveillance, periodic evaluation, medical approval, and the use of National Institute of Occupational Safety and Health (NIOSH) approved equipment.

7.2 Contractors are to require each of their employees who will be expected to wear a respirator as part of his/her job to be medically evaluated for approval, properly fitted, and trained in its use prior to beginning work.

7.3 Documentation of the medical approval to wear a respirator is to be provided by the Contractor to Monsanto for review by the location Medical Services. Where location Medical Services do not exist, documentation of medical approval is to be submitted to DMHS for review.

Positive pressure self-contained respiratory protective devices designed and used for the sole purpose of emergency escape do not require medical approval and fitting. These respirators do, however, require training in their application and use.

7.4 Contractors are to be responsible for properly fitting and training its employees. In extenuating circumstances, if the Contractor is not able to properly fit and train its employees, Monsanto may, upon written request, consider assisting the Contractor in providing such services. (See Section 14.0 for indemnification requirements.)

7.5 Contractors are to furnish the proper respiratory protective devices to its employees and to assure that such devices are used in conformity with applicable laws and regulations.

7.6 In the event that Contractor's employees have not been fit-tested and respiratory protection is necessary, only positive pressure, supplied air equipment is to be used.

7.7 Contractors are to adhere to the location policy regarding facial hair in the sealing area of respirators.

7.8 Supplied breathing air for respirator usage is to be provided by the Contractor unless dictated by an emergency. Monsanto may, upon written request, consider furnishing breathing air. (See Section 14.0 for indemnification requirements.)

7.9 The Contractor is to test all breathing air sources for oxygen content, and insure that the breathing air is certified as meeting the specifications for Grade D air as described in the Compressed Gas Association Commodity Specification G-7.1-1973 prior to use, whether Monsanto or Contractor supplied.

7.10 Monsanto is to retain the right to test at its discretion all supplied breathing air provided by Contractor.

8.0 MEDICAL SERVICES

The listing below includes chemical/physical agents and situations for which occupational health surveillance is presently required. This listing could be changed periodically as appropriate by DMHS. This surveillance may be required by regulation and therefore legally mandated. In addition, there are exposures for which no legally enacted standard mandates surveillance, but for which Monsanto requires periodic health evaluation. Occupational health surveillance is targeted to specific at-risk groups as defined by workplace assignment, known exposure history, and/or workplace monitoring data and conducted by performing certain specific health examinations to include the following: